



ABSTRACT

The present invention provides a UWB transmitter and receiver, the transmission rate of which is increased, and the SN ratio of which is improved. By investigating the polarity of an echo at $1/2$ position of the chip period T_c , the chip period is shortened to $T_c/2$ where the polarity of the echo is the same and a pulse signal of the same polarity is continued, whereby it becomes possible to increase the transmission rate. Because the echo and the pulse signal are caused to overlap each other, the SN ratio can be improved.